

\* There are two cycles :

① Production cycle ,

- Production cycle starts and ends with Customer.

② Production - Consumption cycle :

- ( $a_p$  Production rate)

- ( $a_c$  consumption rate)

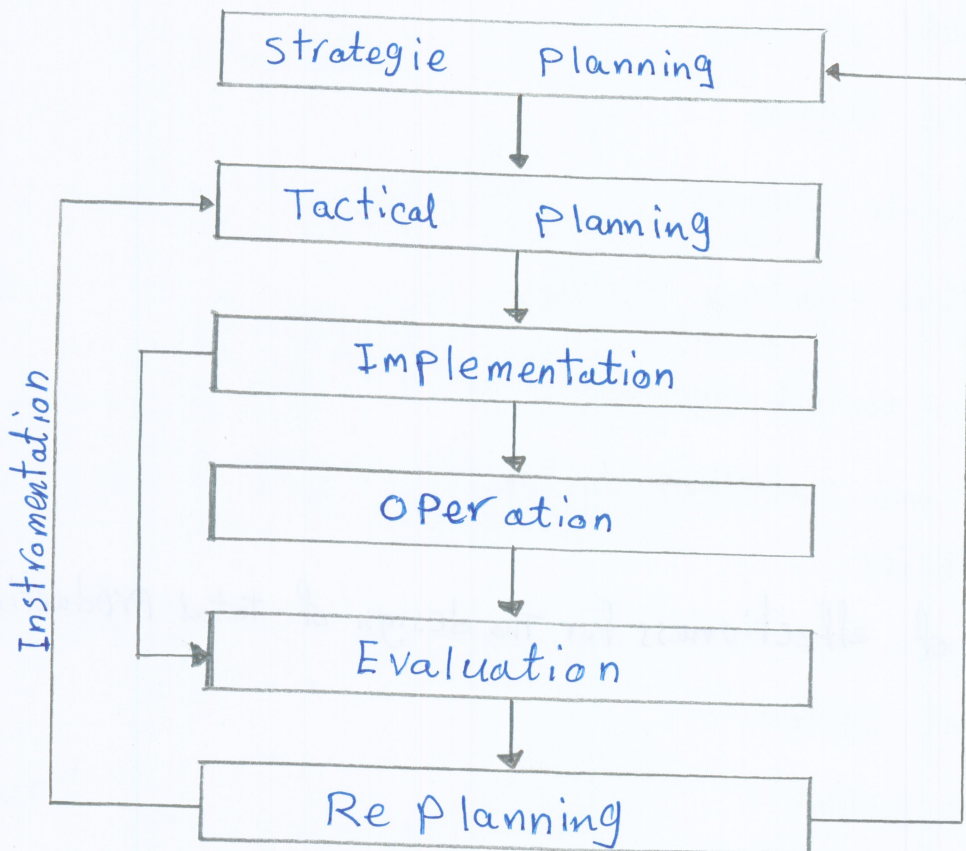
\* For good Market =  $a_p > a_c$

note: Depreciation

الاملاك

- تقانة القيمة المادية للعمليات الورقية المختلفة داخل القطاع .

Production - Consumption Diagram :



\* Prod-Cons cycle includes facilities and abilities as follows:

- (1) Production Design (Standardization - Specialization - Simplification)
- (2) Job and Process Design (Job sequence and Labor)
- (3) Equipment selection and Replacement (high Quality)
- (4) Labor skills (Time - Quality - Profit)
- (5) Input materials selection (high Quality)
- (6) Plant selection (Large-space Places - Production, transport and storage Places)
- (7) Scheduling steps (Market Planning)
- (8) Implementing and Controlling the schedule (Control Quality - Marketing - Distribution)
- (9) operating the Production system (Planning - advising - checking - Prod. size)

\* Prod. Cons Diagram includes consideration of control system as follows:

- (1) Inventory - control Policies
- (2) Quality - control Policies
- (3) Production schedule Policies
- (4) Productivity & Cost - control Policies
- (5) Constructing - control system
- (6) Implementing and controlling system
- (7) modifying Policies

\* The measures of effectiveness for the design of total Production system:

- (1) Costs of running system
- (2) Quality of the output
- (3) Production rate and Productive Capacity
- (4) Flexibility to adjust to change circumstances
- (5) Social value of system



## \* Money :

- الشئ من الفاعل لكل ما يوجد بالاضافة

## - Costs :

### [1] variable Costs (Direct costs) :

- Material Costs (D.M.C) } V.C
- Labor Costs (D.L.C) }

$$* a = \text{variable costs} / \frac{\text{Piece Product}}{\text{unit}} (\text{money}) * \text{Production Volume} = \text{Quantity (units)}$$

$$V.C = (D.M.C) + (D.L.C) = a \cdot Q (m \cdot u)$$

### [2] Fixed Costs (indirect costs) :

- (i) Overhead Expenses
- (ii) Factory Expenses
- (iii) Administrative Expenses
- (iv) Selling Expenses

## \* Total Cost :

$$T.C = \text{Variable Cost} + \text{Fixed Cost} = V.C + F.C \\ = F + aQ$$

## - Sales Income (S.I.) (Revenue) :

$$T.C. + \text{Profit}$$

$$- b = S.I. / \text{unit}$$

$$- \text{Revenue} = b \cdot Q$$

$$- \text{Profit (Z)} = R - T.C.$$

$$* Q' (\text{Prod. Quantity})$$

$$* B.E.P. (\text{Break Even Point})$$

$$* \text{Profit Triangle}$$

